

## **What is claimed is:**

- [Claim 1]**      1. An apparatus for increasing power to a memory array of a memory subsystem associated with a motherboard of a computer, the apparatus comprising means for supplying an input voltage to the memory subsystem at a level that is higher than a power level provided to the memory subsystem by the motherboard.
- [Claim 2]**      2. The apparatus according to claim 1, wherein the supply means comprises means for electrically connecting the supply means to an available memory slot of the memory subsystem, the connecting means delivering the input voltage to the memory subsystem.
- [Claim 3]**      3. The apparatus according to claim 1, wherein the supply means comprises means for plugging into an available memory slot of the memory subsystem, the plugging means delivering the input voltage to the memory subsystem.
- [Claim 4]**      4. The apparatus according to claim 1, wherein the input voltage is in excess of available voltage present on a motherboard within the computer.
- [Claim 5]**      5. The apparatus according to claim 1, wherein the input voltage is in excess of 3.3 volts.
- [Claim 6]**      6. The apparatus according to claim 1, wherein the apparatus further comprises cable means that delivers a supply voltage from a power source to the supply means.

- [Claim 7]        7. The apparatus according to claim 6, wherein the power source is external of the computer and comprises an AC/DC converter.
- [Claim 8]        8. The apparatus according to claim 6, wherein the power source is external of the computer and comprises a DC power source.
- [Claim 9]        9. The apparatus according to claim 6, wherein the power source is a power supply unit within the computer.
- [Claim 10]       10. The apparatus according to claim 6, wherein the power source supplies at least five volts to the supply means.
- [Claim 11]       11. The apparatus according to claim 1, wherein the available memory slot is on a motherboard of the computer.
- [Claim 12]       12. The apparatus according to claim 1, wherein the supply means comprises at least a first printed circuit board and electrical pins along an edge of the first printed circuit board, the edge of the first printed circuit board being configured to be received in the memory slot and the pins being configured for making electrical contact with the memory slot.
- [Claim 13]       13. The apparatus according to claim 12, wherein the supply means further comprises means for displaying the input voltage delivered by the supply means to the memory subsystem,

the displaying means not being located on the first printed circuit board.

[Claim 14]            14. The apparatus according to claim 12, wherein the supply means further comprises means for adjusting the input voltage delivered by the supply means to the memory subsystem, the adjusting means not being located on the first printed circuit board.

[Claim 15]            15. The apparatus according to claim 1, wherein the supply means comprises means for displaying the input voltage delivered by the supply means to the memory subsystem.

[Claim 16]            16. The apparatus according to claim 1, wherein the supply means comprises means for adjusting the input voltage delivered by the supply means to the memory subsystem.

[Claim 17]            17. The apparatus according to claim 1, wherein the memory subsystem comprises DIMM memory modules.

[Claim 18] 18. An apparatus for providing power to an array of DIMM's in memory slots on a motherboard of a computer, the apparatus comprising:

a power source;

at least one circuit board having electrical pins along an edge thereof that is configured to be received in an available one of the memory slots, the circuit board having circuitry for delivering an input voltage to the DIMM's through the electrical pins;

means for delivering a supply voltage from the power source to the circuit board;

means for displaying the input voltage delivered by the circuit board to the DIMM's; and

means for adjusting the input voltage delivered by the circuit board to the DIMM's.

[Claim 19] 19. The apparatus according to claim 18, wherein the power source and the circuit board are operable to deliver the input voltage at a level of more than 3.3 volts.

[Claim 20] 20. The apparatus according to claim 18, wherein the input voltage raises at least one of VDIMM, Vref, and Vtt on the motherboard.

[Claim 21] 21. The apparatus according to claim 18, wherein the power source is external of the computer and comprises an AC/DC converter.

[Claim 22] 22. The apparatus according to claim 18, wherein the power source is a power supply unit within the computer.

- [Claim 23]            23. The apparatus according to claim 18, wherein the power source supplies power at a voltage in excess of voltage supplied to the memory slot by the motherboard.
- [Claim 24]            24. The apparatus according to claim 18, wherein the displaying means is located on the circuit board.
- [Claim 25]            25. The apparatus according to claim 18, wherein the displaying means is located on a front panel of the computer.
- [Claim 26]            26. The apparatus according to claim 18, wherein the adjusting means is located on the circuit board.
- [Claim 27]            27. The apparatus according to claim 18, wherein the adjusting means is located on a front panel of the computer.

[Claim 28]            28. A method of providing power to a memory array of a memory subsystem of a computer, the method comprising the steps of:

electrically connecting a supply means to an available memory slot of the memory subsystem;

electrically connecting a power source to the supply means; and

delivering an input voltage to the memory subsystem with the supply means.

[Claim 29]            29. The method according to claim 28, wherein the input voltage is in excess of available voltage present on a motherboard within the computer.

[Claim 30]            30. The method according to claim 28, wherein the input voltage is in excess of 3.3 volts.

[Claim 31]            31. The method according to claim 28, wherein the power source is external of the computer.

[Claim 32]            32. The method according to claim 28, wherein the power source is a power supply unit within the computer.

[Claim 33]            33. The method according to claim 28, wherein the power source supplies at least five volts to the supply means.

[Claim 34]            34. The method according to claim 28, wherein the available memory slot is on a motherboard of the computer.

[Claim 35]            35. The method according to claim 28, further comprising the step of displaying the input voltage delivered by the supply means to the memory subsystem.

[Claim 36]            36. The method according to claim 28, further comprising the step of adjusting the input voltage delivered by the supply means to the memory subsystem.

[Claim 37]            37. The method according to claim 36, wherein the adjusting step comprises the steps of:

rebooting the computer after the electrically connecting;  
entering the BIOS of the computer;  
adjusting the input voltage delivered by the supply means to the memory subsystem whereupon the supply means delivers the input voltage to the memory subsystem; and then  
saving and exiting the BIOS.

[Claim 38]            38. The method according to claim 36, wherein the adjusting step is performed during operation of the computer.

[Claim 39]            39. The method according to claim 36, wherein the adjusting step is performed during system idle of the computer.

[Claim 40]            40. The method according to claim 36, wherein the adjusting step is performed when the computer is off.

[Claim 41]            41. The method according to claim 28, wherein the memory subsystem comprises DIMM memory modules.

[Claim 42]                42. The method according to claim 28, wherein the step of electrically connecting the supply means to the available memory slot comprises physically installing the supply means into the available memory slot.

[Claim 43]                43. The method according to claim 28, wherein the step of electrically connecting the supply means to the available memory slot does not comprise physically installing the supply means into the available memory slot but instead comprises using a separate interface means to electrically couple the supply means and the memory subsystem.